

Appl. No. 10/644,235  
Amdt. dated October 1, 2007  
Reply to Office Action of May 31, 2007

### Remarks

The present amendment responds to the final Official Action dated May 31, 2007. A petition for a month extension of time and authorization to charge our credit card the fee of \$120 accompany this amendment. The Official Action rejected claims 1, 3-9, 13, 15, 17-21 and 25 under 35 U.S.C. 102(a) based on Fatehi U.S. Patent No. 4,878,726 (Fatehi) in view of Mizuhara U.S. Patent No. 6,535,316 (Mizuhara). The Official Action rejected claims 2, 10-12, 14, 16, and 22-24 under 35 U.S.C. 103(a) based on Fatehi in view of Mizuhara and further in view of Ono U.S. Patent No. 6,388,786 (Ono). Claims 1, 2, 10-12, 16 and 22-24 have been amended to be more clear and distinct. Claims 1-25 are presently pending.

### The Art Rejections

As addressed in greater detail below, Fatehi, Mizuhara and Ono do not support the Official Action's reading of them and the rejections based thereupon should be reconsidered and withdrawn. Further, the Applicants do not acquiesce in the analysis of Fatehi, Mizuhara and Ono made by the Official Action and respectfully traverse the Official Action's analysis underlying its rejections.

The Official Action rejected claims 1, 3-9, 13, 15, 17-21 and 25 under 35 U.S.C. 103(a) based on Fatehi in view of Mizuhara. Claims 2, 10-12, 14, 16 and 22-24 were rejected under 35 U.S.C. 103(a) based on Fatehi and Mizuhara in further view of Ono. Claims 1 and 15 have been amended to incorporate limitations similar to those of former claims 2 and 16, respectively, as well as to make other amendments improving their clarity and further distinguishing the relied upon art. In light of these amendments, Fatehi, Mizuhara and Ono are all needed by the

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Examiner to reject all of the claims. As addressed in detail below, the limitations of the presently claimed combinations are not taught and are not made obvious by Fatehi, Mizuhara and Ono.

Fatehi teaches a transmission system using a single transmitter producing two optical outputs, including an original signal comprising a digital optical output, and a second signal which is the complement of the original signal. The signals are routed along two separate optical paths to a switch, which normally selects the original signal as the optical output of the switch. When the absence of the original signal, or an excessive error rate, is detected, indicating a failure of the transmission path carrying the original signal, the switch selects the second signal for use as the optical output of the switch. The complement signal can then be processed in order to provide the information content of the original signal. As admitted by the final Official Action in paragraph 2: "Fatehi does not disclose modulating the first and second beams so that they combine to produce streams of asserted and unasserted data bits."

As further admitted in paragraph 3, Fatehi and Mizuhara do "not disclose means for modulating said first electromagnetic radiation with a shift signal based on the source signal to shift the phase of said alternate data bit signals and means for modulating said second electromagnetic radiation signal with said shift signal based on the source signal to shift the phase of said alternate data bar bit sequences."

As explained at page 9, lines 7-20 and page 11, lines 10-19, the claimed phase modulation to shift the phase of "alternate data bit sequences" and "alternate data bar bit sequences" advantageously reduces the effect of chromatic dispersion. Fatehi does not recognize

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the negative effect of spreading due to chromatic dispersion over long transmission distances, and does not address phase shifting to address the problem. Mizuhara is similarly lacking.

Ono employs a duo binary format which is both amplitude and phase modulated. This format is uniquely different than the presently claimed "alternate block phase inversion coded representations". As seen in Figs. 4 and Figs. 10A-10D of Ono, one (1) bits are encoded as blocks, but zero (0) bits are not. This difference is significant as explained at page 21, lines 23-25, for example, of the present application, as the claimed alternate block approach provides power advantages by utilizing electromagnetic radiation that would otherwise be discarded.

Further, because Ono focuses on individual bits rather than blocks or sequences of the same bits, sometimes he shifts the phase between blocks, but he does not do so consistently. See for example, the Tables of his Figs. 9 and 19. As a result, the phase shifting that he does, does not make obvious that which is presently claimed. Compare, for example, Fig. 5 of the present application which shows alternating shifted blocks 524, 525 and 526 for data signal 520 and alternating shifted blocks 541, 549 and 551 for bar signal 540.

Further, Ono does not teach and does not make obvious the shifting of alternating blocks of asserted data bits and alternating blocks of asserted data bar bits. Looking at data signal 520 of Fig. 5 of the present application, by way of example, first block of asserted bits 521 is not shifted, second block 524 is shifted, block 552 is not, block 525 is, block 523 is not and block 526 is shifted. Thus, it is seen that alternating blocks of asserted bits are shifted. The same is true for data bar signal 540. This claimed arrangement is not found in Ono.

In conclusion, Fatehi, Mizuhara and Ono do not make obvious the presently amended

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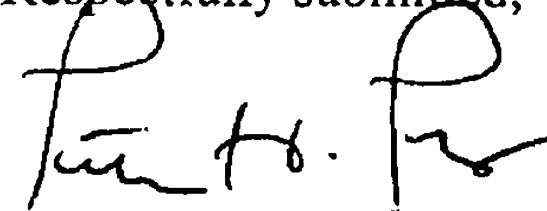
claims.

Additionally, claims 2 and 16 have now been amended to address the common control signal time shifted differently as described at page 18, line 5 et seq., for example. As noted there, the mutual symmetry in non return to zero (NTZ) coding of signal 310 and inverted copy 350 facilitates use of a time shifted control system. these claims further define over the relied upon items.

#### Conclusion

All of the presently pending claims, as amended, appearing to define over the applied references, withdrawal of the present rejection and prompt allowance are requested.

Respectfully submitted,



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